

## A NEW GENUS AND A NEW SPECIES OF ACRIDIDAE (ORTHOPTERA) FROM YUNNAN, CHINA<sup>1</sup>

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**ABSTRACT:** A new genus *Sinocaryanda* gen. nov. is proposed for *Sinocaryanda macrocercusa* sp. nov. from Yunnan, China. The new genus is an aberrant member of the Oxyinae and resembles *Caryanda* Stål, 1878, and *Nepalocaryanda* Ingrisch, 1990. It differs from the latter two by the following features in male: terminalia dorsally broad; 10th tergite broadly interrupted in midline with widened, rounded, medial margins; cerci reaching to or beyond apex of subgenital plate; epiphallus not divided in middle, and aberrant connecting mode of anchorae with bridge.

**KEY WORDS:** Orthoptera, Acrididae, new genus, new species, China

While identifying the grasshoppers collected from the western Yunnan, we found a new species belonging to a new genus, herein named *Sinocaryanda* gen. nov. Type specimens are deposited in the College of Life Sciences and Chemistry, Dali University (CLDU), Yunnan Province. In this paper, we adopt the classification system of Vickery and Kevan (1983) which seems to be the most appropriate at the present knowledge, and follow the methods used by Ingrisch (1989) and the main terminology utilized by Dirsh (1975).

### *Sinocaryanda*, NEW GENUS

**Diagnoses:** Size small. Head conical. Vertex convex with apex roundly angular, fastigium moderately broader than long; face oblique in lateral view; frontal ridge sulcated in whole length; lateral facial carinae straight. Antennae filiform, surpassing hind margin of pronotum. Eyes long oval. Pronotum cylindrical, anterior margin broad round, posterior margin with a triangular breach; median carina faint, intersected by three sulci, lateral carinae absent. Prosternal spine long conical. Mesosternal interspace longer than wide. Squamipterous. Tympana distinct. Hind femora with upper carina smooth, terminating in a short spine; lower genicular lobes spinous. Hind tibiae with apical half nearly cylindrical; external apical spine present. Terminalia broad in dorsal view; 10th abdominal tergite broadly interrupted in midline with widened, rounded, medial margins; cerci compressed, triangular, reaching to or beyond apex of subgenital plate. Subgenital plate short conical. Epiphallus very broad with only one pair of large lophi; bridge nearly entire, not divided in middle; anchorae hooked, dorsad projecting in a 90° angle from bridge, connected with bridge by membrane. Oval sclerites elongate. Cingular valves not fused apically, paired.

**Type species:** *Sinocaryanda macrocercusa*, sp. nov.

**Remarks:** The keys in Willemse (1955) and Li and Xia (2006) run to *Caryanda*

<sup>1</sup> Received on May 18, 2006. Accepted on April 17, 2007.

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Stål, 1878, which is listed under the Oxyinae (Vickery and Kevan, 1983; Otte et al., 2005). However, the new genus has the following striking differences from *Caryanda* except general appearance: male terminalia dorsally very broad; 10th tergite broadly interrupted in midline with widened, rounded, medial margins, instead of with small furculae on posterior margin; cerci reaching to or beyond apex of subgenital plate instead of supra anal plate. Further differences appear on the shape of epiphallus with bridge not divided in middle, large extending lophi, anchorae pointing dorsad, and mode of anchorae connecting with bridge; on cingular valves which is apically divided instead of fused. The new genus also is closest to *Nepalocaryanda* Ingrisch, 1990, but differs from the latter by fastigium that is moderately broad instead of very broad; ventral genicular lobes of posterior femora are spined; apical half of posterior tibiae is nearly cylindrical; and abdominal sternites have tufts of hairs. The differences are listed in detail in Table 1. The new genus is an aberrant member of the Oxyinae. It does not possess the following very characteristic features of the subfamily: the apical expansion of the hind tibiae, the divided bridge of epiphallus, and the fusion of the cingular valves. It agrees with the Oxyinae in general appearance, the apical spine of the ventral genicular lobes of the posterior femora, the tufts of hair on the abdominal sternites. The scientific name derives from its distribution and similarity to *Caryanda* Stål, 1878.

Table 1. Comparisons among *Sinocaryanda* gen. nov. and its allied genera

<i>Caryanda</i>	<i>Sinocaryanda</i> , gen. nov.	<i>Nepalocaryanda</i>
Fastigium moderately broad	Fastigium moderately broad (Fig. 2)	Fastigium very broad
Ventral genicular lobes of posterior femora spined	Ventral genicular lobes of posterior femora spined	Ventral genicular lobes of posterior femora unspined
Posterior tibiae with apical half cylindrical	Posterior tibiae with apical half nearly cylindrical	Posterior tibiae expanded apically
Terminalia dorsally normal; abdominal sternites with tufts of hairs	Terminalia dorsally broad (Fig. 5); abdominal sternites with tufts of hairs (Fig. 1)	Terminalia dorsally normal; abdominal sternites without tufts of hairs
10th tergite in male narrow with or without small furculae	10th abdominal tergite broadly interrupted in midline with widened, rounded, medial margins (Fig. 5)	10th tergite in male narrow, with small, prominent furculae
Cerci conical	Cerci compressed (Figs. 1, 4-5)	Cerci compressed
Epiphallus divided, with 1-2 pairs lophi; cingular valves fused apically; anchorae pointing apicad, directly connected with bridge	Epiphallus not divided, with a pair of lophi; cingular valves divided apically; anchorae hooked, dorsad projecting in a 90° angle from bridge, connected with bridge by a soft membrane (Figs. 6-11)	Epiphallus divided, with a pair lophi; cingular valves divided apically; anchorae pointing apicad, directly connected with bridge

*Sinocaryanda macrocercusa*, NEW SPECIES

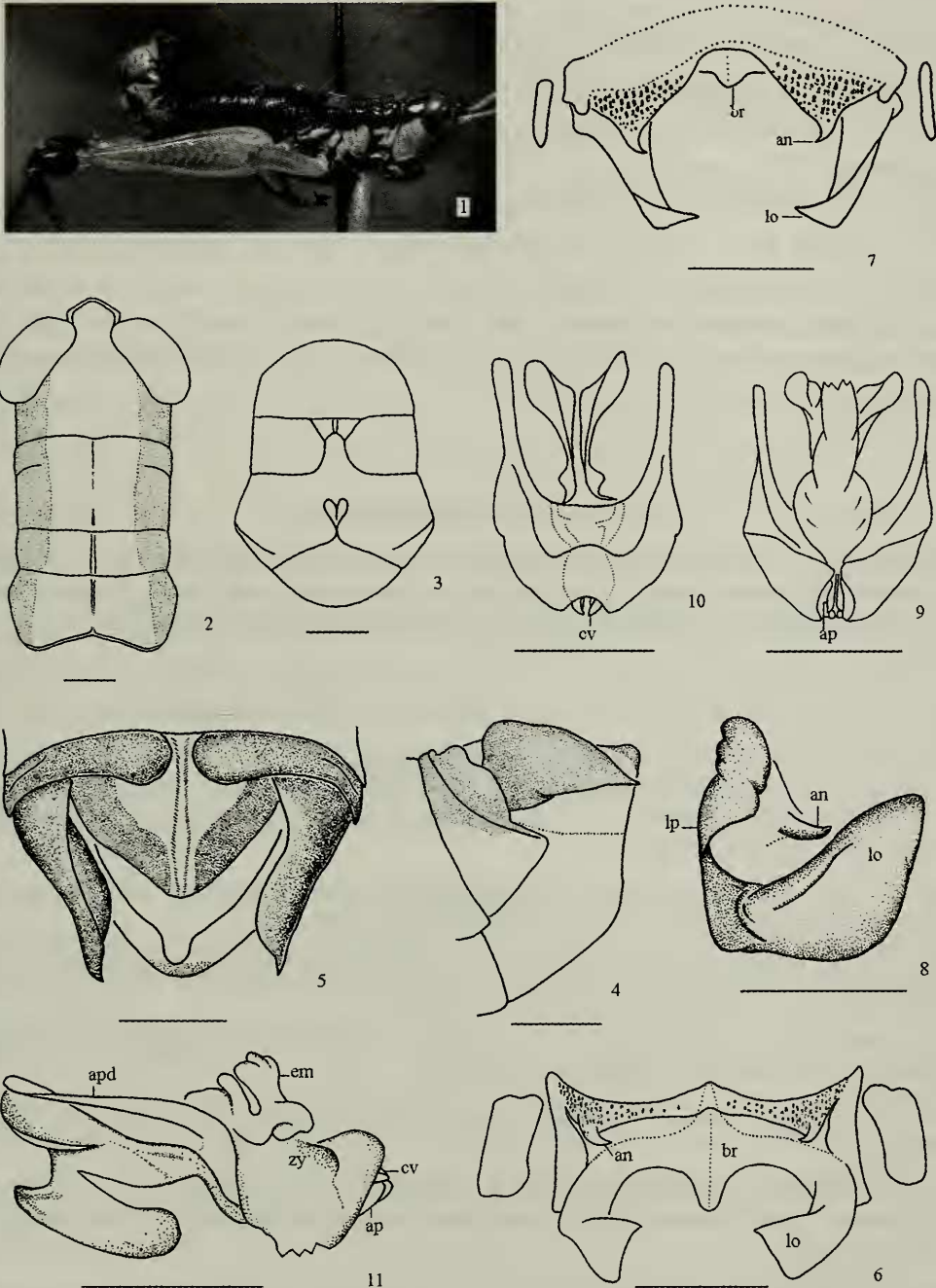
(Figs. 1–11)

**Type Locality.** Mt. Wuliang, Nanjian County, Yunnan Province, China (24° 12'N, 100°48'E), 2000 m, 17Jul. 2003.

**Description. Male (Figs. 1–11).** Body small-sized. Vertex convex with apex roundly angular, fastigium moderately broader, width in front of eyes 2.3–2.4 times larger than length. Frons oblique in lateral view; frontal ridge sulcated in whole length, lateral margins somewhat parallel, slightly broad near the median ocellus. Interocular distance about 1.3 times larger than width of frontal ridge between antennae. Lateral facial keels straight. Antennae filiform, reaching base of hind femur, any middle segment about 2.9–3.1 times longer than wide. Eyes long oval, longitudinal diameter about 1.4 times as long as horizontal one, and about 2.4 times as long as subocular furrow. Pronotum nearly cylindrical, anterior margin broad round, posterior margin with a triangular breach; median carina faint, distinctly intersected by three sulci, lateral carinae absent; prozona 2.0 times as long as metazona (Fig. 2). Prosternal spine long conical, apex subacute. Mesosternal interspace about 2.5–2.6 times as long as minimum width; mesosternal lobes 1.2 times wider than long; metasternal lobes contiguous (Fig. 3). Tegmina narrow squamiform, length 2.8–2.9 times as long as maximum width, reaching posterior margin of 1st abdominal tergite (Fig. 1). Hind femur with upper carina smooth, terminating in a short spine; apex of lower knee lobe spinous. Hind tibia with apical half nearly cylindrical, with 7 external and 9 internal spines on dorsal side; external apical spine present. Abdomen with median carinula. Tympana opening nearly rounded. Abdominal sternites with tufts of hairs (Fig. 1). Terminalia broad in dorsal view. Tenth abdominal tergite broadly interrupted in midline with widened, rounded, medial margins. Supra anal plate broadly triangular, 1.6 times wider than long, with a middle longitudinal sulcus along whole length. Cerci laterally compressed, large, triangular; apex pointed, reaching to or beyond apex of subgenital plate. Subgenital plate short conical, apex blunt (Figs. 4–5). Epiphallus very broad with only one pair of lophi projecting in a 90° angle from bridge; lophi large (length about 1.3 mm), stout, triangular with apex gently incurved, acute; lateral plates narrow, undulate; anterior projections obtuse; bridge cross-shaped, not divided or with only indication of split in middle; anchorae hooked, dorsad projecting in a 90° angle from bridge, connected with bridge by a soft membrane which has many cylindrical prominences on the surface. Oval sclerites elongate. Cingulum with apodemes, zygo-ma and rami; apodemes narrow, lamellate; zygo-ma posteriorly connected with membraneous sheath covering the apical penis valves, laterally connected with rami. Cingular valves not fused apically, paired (Figs. 6–11).

**Coloration.** Generally dark green. Frons and genae yellowish green. Antennae yellow. Eyes grey. Postocular bands black, laterally extending to 5th abdominal tergite. Lateral lobes of pronotum with two yellowish green maculae, ventral margins black. Tegmina black. Meso- and metathorax with episterna and

epimera yellow. Fore and mid legs with femora yellow, tibiae greenish yellow. Hind femora yellowish green, knee black. Hind tibiae blue. Tenth abdominal tergite, cerci black. Lateral areas of supra anal plate and apex of subgenital plate black.



Figs. 1–11. *Sinocaryanda macrocercusa* new species: 1. body of male, lateral view; 2. head and pronotum of male, dorsal view; 3. meso- and metasternum of male; 4. terminalia of male, lateral view; 5. terminalia of male, dorsal view. 6–8. epiphallus: 6. dorsal view; 7. anterior view; 8. lateral view. 9–11. phallic complex: 9. ventral view; 10. dorsal view; 11. lateral view. (Abbreviations: an, ancora; ap, apical penis valves; apd, apodeme; br, bridge; cv, valves of cingulum; em, ectophallic membrane; lo, lophus; lp, lateral plate; zy, zygoma.) Scale bars = 1 mm.

**Female.** Unknown.

**Measurements.** (mm). Length of body: male 19.0–19.5; length of pronotum: male 3.6–3.7; length of tegmen: male 3.5–4.0; length of hind femur: male 10.5–10.8.

**Type Material.** Holotype: male, Mt. Wuliang, Nanjian County, Yunnan Province, China (24°12'N, 100°48'E), 2000 m, 17 Jul. 2003. Collected by Ben-yong Mao. Paratype: 1 male (5th instar nymph, emerged as adult after a week in the laboratory), other data same as holotype.

**Etymology.** The specific name refers to the size of cercus of male.

**Biology.** The species live in tussock grass under subtropical bushes and broad-leaf trees which grow in the wet and half-shady zone at medium elevation in Yunnan. The food plant of this species has been unknown in field, but in laboratory, it appears to feed on some grass, such as *Arthraxon hispidus* (Thunb.) Makino, *Oplismenus compositus* (Linn.) Beauv. and *Echinochloa crusgalli* (Linn.) Beauv.

#### ACKNOWLEDGEMENTS

We are grateful to Dr. Zi-Zhong Yang and Mr. Ji-Shan Xu for their assistance in collecting specimens, also to Dr. Fu-Min Shi and Dr. Yao Niu for providing us with some copies of related literature. The present study was supported by the Major Item Foundation of Dali University.

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